



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/787,196	04/26/2001	Ichiro Hirao	55729	6079

21874 7590 06/02/2005

EDWARDS & ANGELL, LLP

P.O. BOX 55874

BOSTON, MA 02205

EXAMINER

HENRY, MICHAEL C

ART UNIT

PAPER NUMBER

1623

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/787,196

Applicant(s)

HIRAO ET AL.

Examiner

Michael C. Henry

Art Unit

1623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,8,11 and 12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,8,11 and 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 05/10/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

RD

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishikawa et al. (Nucleic Acids Symposium Series (1999), No. 42, pages 125-126).

In claim 1, applicant claims “A method for forming a selective base pair, the method comprising the step of contacting (i) a nucleic acid having, as a base, 2-aminopurine, which is substituted at position-6 a di(lower alkyl)amino group or a five or six membered aromatic heterocyclic group having 1 or 2 heteroatoms selected from N, O, or S, and (ii) with a nucleic acid having 2-oxo or 2-hydroxy pyridine as a base.” Ishikawa et al. disclose applicant’s method for forming a selective base pair, the method comprising the step of contacting (i) a nucleic acid having, as a base, a 2-aminopurine (i.e., 2-amino-6-(N,N-dimethylaminopurine), which is substituted at position-6 a di(lower alkyl)amino group, and (ii) with a nucleic acid having 2-oxo pyridine (i.e., pyridine-2-one) as a base (see page 125, 2<sup>nd</sup> col., 2<sup>nd</sup> paragraph to page 126, 2<sup>nd</sup> col., 2<sup>nd</sup> paragraph). Claim 8 which is drawn to the method according to claim 1 wherein the five membered aromatic heterocyclic group is thiophene or the di(loweralkyl)amino group is dimethylamino, is also anticipated by Ishikawa et al, since Ishikawa et al.’s base also contain the di(loweralkyl)amino group called dimethylamino (see page 125, 2<sup>nd</sup> col., 2<sup>nd</sup> paragraph to page 126, 2<sup>nd</sup> col., 2<sup>nd</sup> paragraph). Dependent claims 11 and 12 which are drawn to a method wherein

Art Unit: 1623

the base pair is a base pair that can be recognized by polymerase or DNA or RNA polymerase, are also anticipated by Ishikawa et al. (see page 125, 2<sup>nd</sup> col., 2<sup>nd</sup> paragraph to page 126, 2<sup>nd</sup> col., 2<sup>nd</sup> paragraph).

It should be noted that the rejection under 35 U.S.C. 102(b) was made by the examiner, since the examiner believes that the Ishikawa et al. reference was published before the Japan 11-201450/1999 (07/15/1999) document and because applicant's claim to foreign priority over Japan 11-201450/1999 (07/15/1999) has not been perfected, since an English translation of the said foreign priority document is not filed. Furthermore, the following rejection under 35 U.S.C. 102(a) is made in case the Ishikawa et al. reference was published after the Japan 11-201450/1999 (07/15/1999) and because applicant's claim to foreign priority over Japan 11-201450/1999 (07/15/1999) has not been perfected, since an English translation of the said foreign priority document is not filed.

Claims 1, 8, 11 and 12 are rejected under 35 U.S.C. 102(a) as being anticipated by Ishikawa et al. (Nucleic Acids Symposium Series (1999), No. 42, pages 125-126).

In claim 1, applicant claims "A method for forming a selective base pair, the method comprising the step of contacting (i) a nucleic acid having, as a base, 2-aminopurine, which is substituted at position-6 a di(lower alkyl)amino group or a five or six membered aromatic heterocyclic group having 1 or 2 heteroatoms selected from N, O, or S, and (ii) with a nucleic acid having 2-oxo or 2-hydroxy pyridine as a base." Ishikawa et al. disclose applicant's method for forming a selective base pair, the method comprising the step of contacting (i) a nucleic acid having, as a base, a 2-aminopurine (i.e., 2-amino-6-(N,N-dimethylaminopurine), which is substituted at position-6 a di(lower alkyl)amino group, and (ii) with a nucleic acid having 2-oxo

Art Unit: 1623

pyridine (i.e., pyridine-2-one) as a base (see page 125, 2<sup>nd</sup> col., 2<sup>nd</sup> paragraph to page 126, 2<sup>nd</sup> col., 2<sup>nd</sup> paragraph). Claim 8 which is drawn to the method according to claim 1 wherein the five membered aromatic hetrocyclic group is thiophene or the di(loweralkyl)amino group is dimethylamino, is also anticipated by Ishikawa et al, since Ishikawa et al.'s base also contain the di(loweralkyl)amino group called dimethylamino (see page 125, 2<sup>nd</sup> col., 2<sup>nd</sup> paragraph to page 126, 2<sup>nd</sup> col., 2<sup>nd</sup> paragraph). Dependent claims 11 and 12 which are drawn to a method wherein the base pair is a base pair that can be recognized by polymerase or DNA or RNA polymerase, are also anticipated by Ishikawa et al. (see page 125, 2<sup>nd</sup> col., 2<sup>nd</sup> paragraph to page 126, 2<sup>nd</sup> col., 2<sup>nd</sup> paragraph).

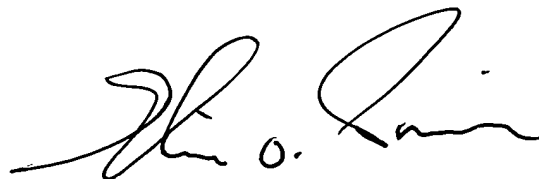
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Henry whose telephone number is 571-272-0652. The examiner can normally be reached on 8:30 am to 5:00 pm; Mon-Fri. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson can be reached on 571-272-0661. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-1235.

MCH

May 25, 2005.



**ELVIS O. PRICE, PH.D.  
PRIMARY EXAMINER**